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with quartz sand. While not yet completed, this investigation has already shown that a rich adobe (clay) soil, as well as an equally rich sandy soil, diluted to an extent of four to one, shows equally good growth, but that when in these soils the dilution reaches five to one, development is quite slow, and in a short season would mean a crop failure. The moisture content was in all these cases maintained at one half the maximum water capacity of each diluted soil. Photographs show clearly that here the roots made up by their extension for the lack of concentration of the food supply; but at the dilution of one to five they were unable to make up that deficiency, at least within a reasonable time, although the same total *amount* of food ingredients was always present in the increased bulk. Other things being equal, it is the *proportion*, then, between the several soil ingredients, quite as much as the absolute quantity at hand, that determines production. Incidentally, this experiment shows the wide variation of physical composition (from a soil containing 35 per cent. of colloidal clay to one with only 8.75 per cent., and in the sandy soil from 7.6 per cent. to 1.9 per cent.) within which plants will do equally well, provided the plant food ingredients are rightly proportioned; and provided also that a proportionally large soil mass is available to each plant.

In the foregoing discussion, only the salient points of the bulletin in question have been taken up, and their most obvious weaknesses briefly considered. To do more would involve the writing of a paper as long as the bulletin itself; and it is to be hoped that the matter will be taken up by others, also. Thus, for instance, the Rothamstead Station might have something to say regarding the singular interpretation here put upon the splendid work of Lawes and Gilbert.

In conclusion, it seems to the writer that the verdict upon the main theses put forward so confidently in this paper must be an emphatic 'Not proven!'

E. W. HILGARD.

BERKELEY, CALIFORNIA,
November 11, 1903.

ABSORBED GASES AND VULCANISM.

To THE EDITOR OF SCIENCE: The descriptions of the spine of Mont Pelé by Hovey and Heilprin remind me of the phenomenon I observed some ten years ago, when my mind was on the subject of the part which the original absorbed gases play in vulcanism, as discussed in my paper in the *Bulletin of the Geol. Soc. Am.*, March 3, 1894. I had a bottle of Werner's grape milk packed in the place of the tin of an ice cream freezer, the same having served its purpose, in order to cool it. I presume any other carbonated beverage would work similarly. Though chilled well below 0° C. the beverage remained clear and unfrozen, as long as it was corked, but upon removing the cork the gas began to escape and freezing to set in rapidly. Sometimes nearly the whole contents of the bottle would freeze. Upon one occasion, however, I remember seeing a 'volcanic plug' of frozen matter forced out in a round cylinder from the neck.

I am inclined to think that there may be a very close analogy with the Mont Pelé spine. I think it would not be very difficult to reproduce this phenomenon, though I can not tell the exact temperature at which it occurred.

ALFRED C. LANE.

SHORTER ARTICLES.

THE HEREDITY OF 'ANGORA' COAT IN MAMMALS.

THAT Mendel's law is a fundamental principle of heredity becomes daily clearer as new illustrations of its workings come to light, either through a reexamination of the older observations on heredity or through the performance of new experiments. One of these new illustrations it is the purpose of this note briefly to describe.

The writer has already pointed out, in the columns of SCIENCE, two pairs of alternative, or Mendelian, characters pertaining to the hairy coat of guinea-pigs. (1) A pigmented coat of any sort is dominant over an unpigmented, or albino, coat. Accordingly when a pure-bred pigmented guinea-pig is mated to an albino, the young are invariably pigmented. (2) The rough, or 'rosetted,' condition of coat found in so-called Abyssinian and Peru-